Pituitary stalk calcification as the earliest neuroradiographic feature of craniopharyngioma in a child

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DESCRIPTION

A teenage girl presenting with right-sided tinnitus and an otherwise normal neurological, ophthalmological and endocrinological examination underwent a head CT, which revealed a heterogeneous calcified suprasellar mass (figure 1). Pituitary MRI (not shown) demonstrated a lobular, heterogeneously enhancing suprasellar mass that protruded into the inferior third ventricle and obscured the infundibulum. The neuroradiographic differential diagnosis for the lesion included craniopharyngioma, hypothalamic–chiasmatic astrocytoma, germinoma and Rathke's cleft cyst. The patient underwent resection where neuropathological evaluation revealed a diagnosis of adamantinomatous craniopharyngioma. Ten years previously, a CT undertaken after the patient sustained a head trauma had demonstrated a focally isolated, linear calcification of the pituitary stalk, without evidence of tumorous mass or haemorrhage (figure 1) that was identified in retrospect. Following surgery, the patient developed subsequent panhypopituitarism and is without evidence of recurrent disease 2 years following only surgical resection.

Brain and other central nervous system tumours have become the most frequent neoplasms in children, making them a leading cause of morbidity and mortality in this population.[1 2]

Craniopharyngiomas are rare intracranial tumours with a first peak of incidence during childhood or early adolescence.[3 4] Considered dysontogenic intracranial tumours with a benign classification (WHO grade 1), craniopharyngiomas are often associated with devastating clinical effects that may be associated with the tumour itself or on subsequent therapy with surgery and/or radiation therapy.[5] Early detection of tumorigenesis is critical to reduce the morbidity associated with craniopharyngiomas, but because symptoms emerge secondarily to tumour growth, craniopharyngioma may often evade clinical detection for years, and features of early neuroradiographic emergence remain inadequately characterised.

We present a child who exhibited an isolated focus of infundibular calcification on CT that, 10 years later, had been succeeded by a craniopharyngioma. Isolated infundibular calcification may represent the earliest neuroradiographic origin of a craniopharyngioma and should be considered in the differential diagnosis of calcified pituitary stalk lesions.

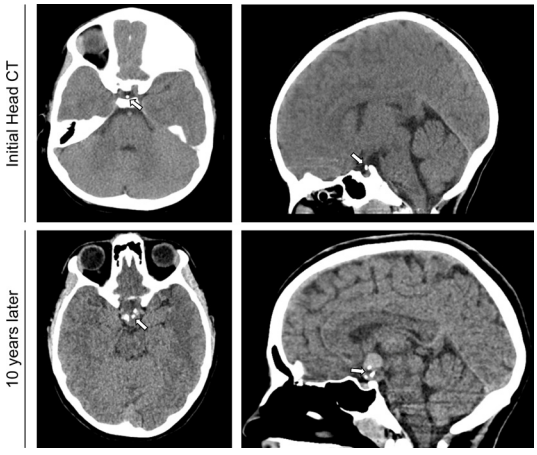

Figure 1 Pituitary stalk calcification precedes craniopharyngioma development in a paediatric patient. Top: head CT shows focal pituitary stalk calcification (white arrows) in the absence of other neuroradiographic changes. Bottom: head CT performed 10 years later portrays a heterogeneous calcified solid and cystic mass protruding into the inferior third ventricle that was subsequently given a neuropathological diagnosis of adamantinomatous craniopharyngioma.

Learning points

- Craniopharyngioma represents approximately 4% of childhood brain tumours and generally present with visual field deficits and signs of hydrocephalus.
- Early detection of tumorigenesis is critical to minimise morbidity, but the neuroradiographic emergence of craniopharyngiomas is inadequately characterised.
- Isolated pituitary stalk calcification in a child may represent the earliest neuroradiographic emergence of a craniopharyngioma.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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